

Application No.: 10/076003

Case No.: 57181US002

39. The integrated circuit of claim 20 wherein at least one of said first electrode layer, said patterned organic semiconductor layer or said second patterned electrode layer is vapor deposited.

40. The integrated circuit of claim 20 wherein each of said first electrode layer, said patterned organic semiconductor layer or said second patterned electrode layer are vapor deposited.

Remarks

Claim Status

Claim 20 is amended herein.

Claims 1-19 and 34-38 are withdrawn.

New claims 39 and 40 have been added. Basis for new claims 39 and 40 may be found, for example at page 1, lines 29-30; page 7, lines 26-31; page 10, line 3 to page 11, line 3; and in the example.

Claims 20-33 and 39-40 are pending.

Restriction Requirement

In the Office Action dated 3/28/03, at page 2, the Examiner acknowledges Applicants' election of Group II. However, in Applicants' response to the Restriction Requirement, Applicants elected Group III, claims 20-33. As the Examiner's arguments are directed to Group III, it is believed that identification of Group II in this Office Action is a typographical error.

Claim Objections

The Examiner has asserted that the language "each patterned layer" in claim 20 is vague and unclear because it is not clear as to which layer Applicant is referring. Applicants have amended claim 20 to specify that "each patterned layer" refers to the patterned first electrode layer, the patterned organic semiconductor layer, and the second patterned electrode layer. Thus, this objection has been obviated by amendment, and Applicants therefore respectfully request that the objection be withdrawn.

Application No.: 10/076003Case No.: 57181US002

Rejection Under 35 U.S.C. Section 102

Claims 20 – 22 and 25 – 33 were rejected under Section 102 as being anticipated by Sturm et al. (U.S. Patent No. 6,087,196). The rejection is respectfully traversed for the following reasons.

Sturm discloses methods of making organic semiconductor devices involving the direct deposition of patterned semiconducting polymers by ink jet printing.

In contrast, Applicants' claimed invention is an integrated circuit comprising a deposition substrate, a first patterned electrode layer formed adjacent to the substrate, a patterned organic semiconductor layer formed adjacent to the first electrode layer, and a second patterned electrode layer deposited adjacent to the patterned organic semiconductor layer. All of these described layers (that is, the first patterned electrode layer, the patterned organic semiconductor layer, and the second patterned electrode layer) are defined by a repositionable aperture mask.

The Examiner has asserted that Sturm discloses a deposition substrate, a patterned first electrode layer adjacent the substrate, a patterned organic semiconductor layer, and a second patterned electrode layer, wherein the patterned layer is defined by a repositionable aperture mask. While Sturm does appear to suggest applying electrodes through shadow or aperture masks (see, for example, column 5, lines 45 – 47), Sturm does not appear to teach or suggest using a repositionable aperture mask to define a patterned organic semiconductor layer. Sturm appears to teach that the organic semiconductor layer is to be directly deposited in a desired pattern using inkjet printing. More particularly, Sturm teaches that droplets of organic containing liquid carriers are deposited from an inkjet printer in a local area on the surface of a substrate. The liquid carriers evaporate to create local regions of desired organic film (or organic "islands"). (See, for example, column 5, lines 17 – 44.)

Further, new claims 39 and 40 are further distinguished from Sturm in limiting at least one, or all of the indicated layers to be vapor deposited layers.

Rejection Under 35 U.S.C. Section 103

Claims 23 and 24 were rejected under Section 103 as being unpatentable over Sturm et al. (U.S. Patent No. 6,087,196). The rejection is respectfully traversed for the following reasons.

Application No.: 10/076003Case No.: 57181US002

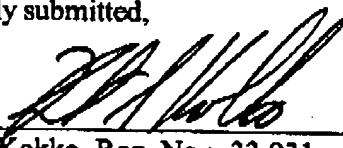
The Examiner has asserted that Sturm discloses the invention substantially as claimed, but that Sturm does not teach a specific range of gap between the source and drain electrodes. The Examiner has further asserted that it would have been obvious for one skilled in the art to modify the gap between the source and drain electrodes of Sturm with the specific range claimed by Applicants. However, as discussed above, Sturm does not teach or suggest an integrated circuit with a patterned semiconductor layer defined by a repositionable aperture mask. Therefore, for the reasons discussed above, claims 23 and 24 are unobvious and patentable over Sturm. Applicants therefore respectfully request that the rejection under Section 103 be withdrawn.

Respectfully submitted,

Date

6/27/03

By:



Kent S. Kokko, Reg. No.: 33,931
Telephone No.: (651) 733-3597

Office of Intellectual Property Counsel
3M Innovative Properties Company
Facsimile No.: 651-736-3833

FAX RECEIVED

JUN 27 2003

TECHNOLOGY CENTER 2800